

Title: Empirical Bayes Confidence Intervals for Selected Parameters

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Abstract:

In modern application, such as microarray experiments, scientists are especially interested in the inference of parameters which have been selected. Scientists often constructed the usual interval, ignoring the fact that these genes have been selected. However, this interval suffers low coverage probability. The other commonly used method is to construct the interval with Bonferroni's correction which guarantees good coverage probability but has a long length.

In this talk, we assume that the observations are normally distributed with unequal and unknown variance. The parameters have been selected according to the magnitude of the t-values. We then construct the empirical Bayes confidence intervals for these selected parameters. We compare this new approach with Bonferroni's correction. Our interval has good empirical Bayes coverage probability, and has much shorter average length. We also consider the multiple confidence intervals controlling the empirical Bayes FCR. Our interval is also applied to the Spike-in data.

This is a joint work with J. T. Gene Hwang.